Rosacea: Diagnosis and Management of a Complex and Significant Disorder

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ABSTRACT: Rosacea is a common chronic cutaneous disorder of the central face. In addition to its physical discomfort, patients report a negative impact on quality of life socially, professionally, and emotionally because of its conspicuous impact on appearance. More recently, the disorder has been linked to increased risk of cardiovascular disease and other serious conditions. The presentation of rosacea may vary, and it may be mistaken for other diseases with facial manifestations. Although rosacea has no cure, a range of therapeutic options combined with lifestyle management may reduce and control its signs and symptoms.

KEYWORDS: Rosacea, erythematotelangiectatic rosacea, papulopustular rosacea, phymatous rosacea, ocular rosacea

Rosacea is a common chronic cutaneous disorder of the central face that is estimated to affect more than 16 million Americans.[1] Rosacea is a syndrome consisting of various combinations of potential signs and symptoms, including flushing, erythema, telangiectasia, edema, papules, pustules, ocular lesions, and rhinophyma (excess growth of tissue on the nose). It may include sensations of burning and stinging, as well as ocular symptoms of foreign-body sensation and dryness. It typically first appears between 30 and 60 years of age.

In addition to experiencing its physical impact, persons with rosacea frequently have reported significant psychological distress owing to the occasionally dramatic and unpredictable nature of its signs and symptoms. In a survey of 1675 rosacea patients by the National Rosacea Society (NRS),[2] 90% of respondents said the effects of the disorder on their personal appearance had lowered their self-esteem and self-confidence; 88% reported embarrassment; and others noted feelings of frustration (76%), anxiety and helplessness (54%), depression (43%), anger (34%), and isolation (32%).

In other NRS surveys, 72% of respondents with moderate to severe redness noted that rosacea had inhibited their social lives[3]; more than 60% said they had avoided face-to-face contact[4]; and 39% reported refusing or canceling social engagements.[3] Many survey respondents said that rosacea had affected their professional interactions, and 28% with severe symptoms reported they had missed work because of their appearance.[5]

Recent medical research has suggested that rosacea may also have deeper connections with general health, including an increased risk of serious systemic disorders. In an analysis of more than 33,000 patients with rosacea in Taiwan,[6] researchers found that they were more likely to have dyslipidemia, coronary artery disease, hypertension, and peripheral artery occlusive disease. In an ongoing US study of more than 116,000 women nurses who complete a biennial questionnaire on medical history and lifestyle practices, the more than 6000 with a diagnosis of rosacea were found to be 1.59 times more likely to have thyroid cancer and 1.5 times more likely to have basal cell carcinoma than those without rosacea.[7] A separate study of 130 individuals also found a significant association between rosacea and allergies, respiratory diseases, gastroesophageal reflux disease, metabolic and urogenital diseases, and female hormone imbalance.[8]

Researchers have noted that while further research is needed to confirm the findings and determine the nature of these connections, clinicians should be aware of potential systemic disorders in individuals with rosacea.

DIAGNOSIS

There is no diagnostic test for rosacea; rather, the disease consists of various combinations of primary and secondary signs and symptoms,[9] requiring a clinical diagnosis. Because the manifestations are often transient and may not be present when the patient is seen, it is important to inquire about possible signs and symptoms when taking the medical history.

Primary features. The presence of one or more of the following signs with a central face distribution is suggestive of rosacea.[9] Many patients may have more than one of these diagnostic features.

- Flushing

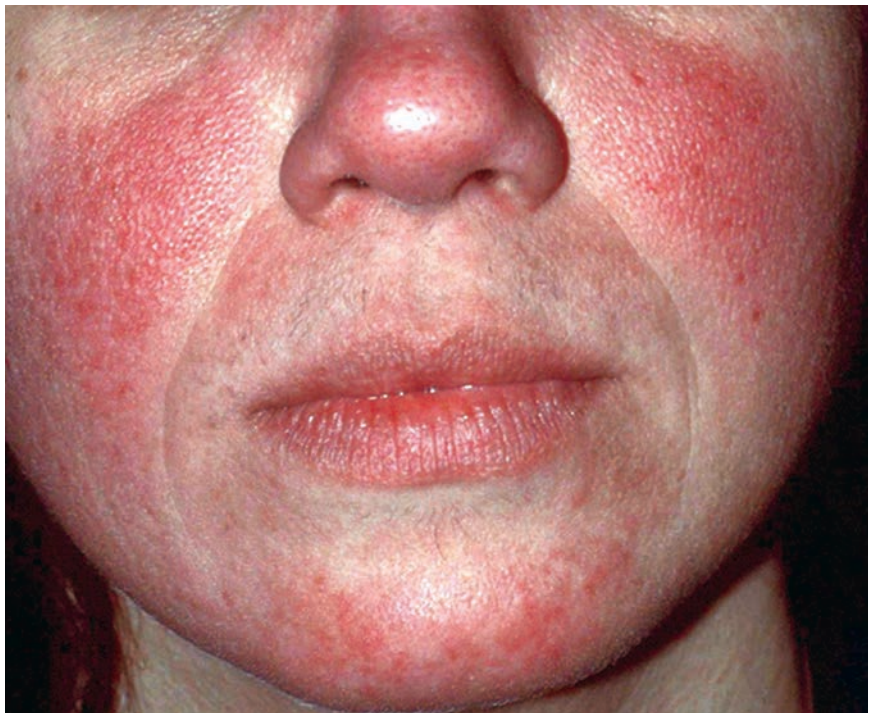

Figure 1. Subtype 1, erythematotelangiectatic rosacea.

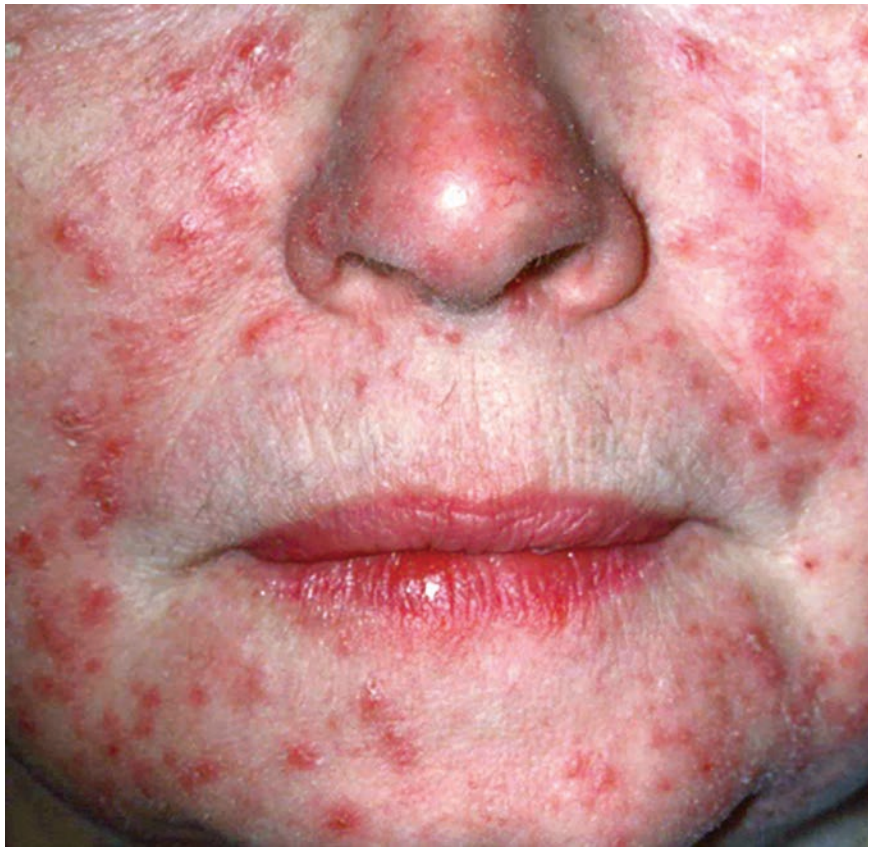

Figure 2. Subtype 2, papulopustular rosacea.

- Persistent redness of the facial skin
- Dome-shaped papules with or without pustules; nodules may also occur
- Telangiectasia

Secondary features. These often appear with one or more of the primary features but also may occur independently.[9]

- Burning or stinging with or without scaling or dermatitis
- Elevated plaques without epidermal changes in surrounding skin
- Dry appearance that may be rough and scaling, suggesting eczematous dermatitis; may include seborrheic dermatitis
- Soft or hard edema
- Ocular manifestations that may include burning, itching, hyperemia, inflammation, styes, chalazia, and/or corneal damage and may appear before cutaneous manifestations
- Peripheral location
- Phymatous changes, possibly including patulous follicles, skin thickening or fibrosis, and bulbous appearance

Subtypes. The most common presentations of primary and secondary features have been designated as subtypes; patients may have more than one subtype at a time. Subtype 1, erythematotelangiectatic rosacea (**Figure 1**), may include flushing, persistent erythema with or without telangiectasia, edema, stinging, or roughness. Subtype 2, papulopustular rosacea (**Figure 2**), may consist of persistent erythema, papules, pustules, and burning/stinging. Subtype 3, phymatous rosacea (**Figure 3**), may include thickening skin, irregular nodularities, and enlargement. Subtype 4, ocular rosacea (**Figure 4**) may comprise foreign body sensation, burning/stinging, dryness, itching, photosensitivity, and blurred vision.[9]

DIFFERENTIAL DIAGNOSIS

Rosacea may often resemble other disorders, including acne and systemic lupus erythematosus (SLE).[10,11] Although the papules and pustules of acne resemble those of rosacea, the two are clinically and biochemically different. Acne is seen most commonly in teens, while rosacea

occurs most often in persons between 30 and 60 years of age. Also, unlike in rosacea, in acne blackheads are generally present, and papules and pustules on extrafacial locations such as the trunk and arms are common.

While SLE and rosacea may share some manifestations, including facial redness, sensitivity to sunlight, and a tendency to affect women more than men, clinicians have often used elevated antinuclear antibody (ANA) levels to distinguish SLE from rosacea. However, ANA levels may not be a reliable indicator, given that one study found that individuals with rosacea also had significantly increased ANA blood levels compared with individuals in a control group, although none developed an apparent autoimmune disorder.[11]

Medical history may also aid in differential diagnosis. For example, an occupation involving extensive sun exposure may indicate chronic actinic damage rather than rosacea.

MANAGEMENT OPTIONS

Medical therapy. Although rosacea encompasses various combinations of potential signs and symptoms, in most cases some rather than all of these features appear and are often characterized by remissions and exacerbations. Therefore, it is important to define the roles of respective treatment modalities as well as lifestyle management and skin care within the context of specific manifestations. In this way, an optimal management approach may be tailored for each individual patient.

First, it is important to obtain a medical history, because it can uncover ocular involvement or other signs that may not be readily apparent from clinical observation as well as identify physical discomfort such as burning or stinging that may substantially affect quality of life.[12]

The management of rosacea should then be tailored to address the signs and symptoms of the individual patient. The physical signs and symptoms of rosacea can be effectively treated in most patients

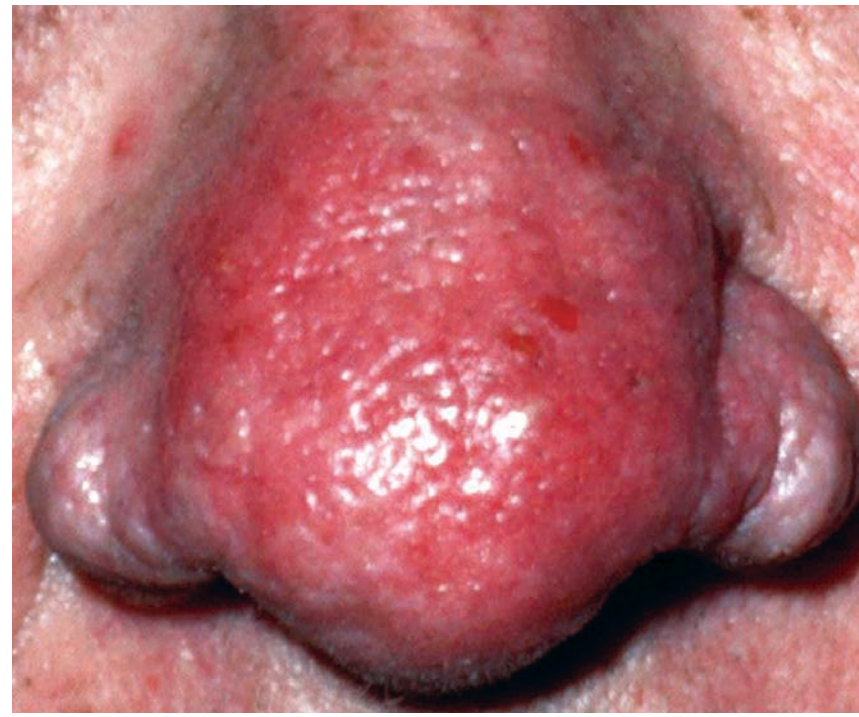

Figure 3. Subtype 3, phymatous rosacea.

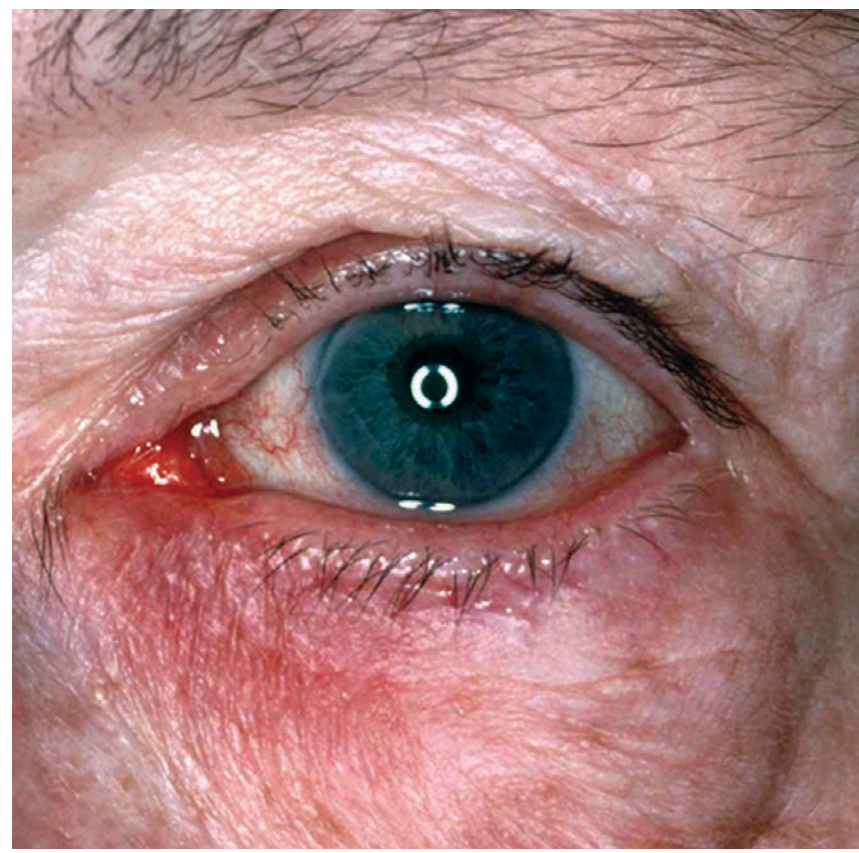

Figure 4. Subtype 4, ocular rosacea.

Table 1. Medical Therapies for Rosacea Approved by the US Food and Drug Administration

Medication	Trade Name	Delivery Route	Description
Doxycycline	Oracea	Oral	Subantimicrobial drug for papules and pustules
Ivermectin	Soolantra	Topical	For inflammatory lesions of rosacea
Brimonidine	Mirvaso	Topical	For facial erythema of rosacea
Azelaic acid	Finacea	Topical	For papules and pustules of mild to moderate rosacea
Metronidazole	Numerous brands	Topical	For lesions of rosacea
Sulfur formulations	Numerous brands	Topical	For lesions of rosacea

with drugs that have been extensively studied in clinical trials and approved by the US Food and Drug Administration for rosacea (**Table 1**), and it may be useful to refer patients to a dermatologist for appropriate treatment.

Facial erythema has been called perhaps the most common and debilitating aspect of rosacea.[13] New topical prescription pharmacotherapy is now available for reducing facial redness, and identifying and avoiding flare-up triggers may also be particularly important in its control and prevention. In addition, light devices including nonablative lasers and intense pulsed light may be used to address telangiectasia and erythema.

For papules and pustules, clinicians often prescribe oral and topical rosacea therapy to bring the condition under control, followed by long-term use of the topical or oral rosacea therapy alone to maintain remission. A version of an oral therapy with less risk of microbial resistance has been developed specifically for rosacea and has been shown to be safe for long-term use.

In addition to topical and systemic treatment, the excess tissue of rhinophyma may be addressed with surgical or ablative laser therapy. Ocular involvement may require cleansing of the eyelashes; artificial tears; and topical ophthalmic and/or oral antibiotics. If the severity increases, consultation with an ophthalmologist may be beneficial, and care may include a topical corticosteroid, surgery, or both.

Rosacea is a disease characterized by flare-ups and remissions, as well as a variety of potential presentations. While research is bringing a clearer focus and better understanding of this life-disrupting disorder, it remains a condition for which there is no diagnostic test and no cure.

Lifestyle modification. Signs and symptoms of rosacea often appear to be triggered by environmental or lifestyle factors. The most common include sun exposure, emotional stress, hot or cold weather, wind, heavy exercise, and alcohol consumption (**Table 2**). Triggers that may affect one patient may not affect another, and avoidance of every potential factor may be unnecessary and impractical. It is useful for patients to keep a diary to identify and avoid those factors that affect the individual.

Appropriate skin care. Consistent, gentle skin care and effective use of makeup are important in the management of rosacea, and the key is to use products and techniques that minimize stinging, burning, and irritation. Ingredients that have been commonly reported to trigger irritation include alcohol, witch hazel, fragrance, menthol, peppermint, and eucalyptus oil. Astringents and exfoliating agents also may be too harsh for rosacea's sensitive skin.

Patients may be advised to follow a gentle cleansing routine, washing with a mild cleanser and using the fingertips rather than an abrasive washcloth or sponge. After rinsing with lukewarm water, the face may be blotted dry with a thick-pile cotton towel. Since stinging most often occurs on damp skin, patients may wait for the face to dry completely before applying topical medication, then wait an additional 5 to 10

minutes before applying moisturizer, sunscreen, or makeup.

Referral to a dermatologist. Rosacea is a disease characterized by flare-ups and remissions, as well as a variety of potential presentations. While new and ongoing research is bringing a clearer focus and better understanding of this life-disrupting disorder, it remains a condition for which there is no diagnostic test and no cure. Referral to a dermatologist of patients suspected of having rosacea may provide an essential path toward the effective management and control of this potentially painful and distressing dermatologic disease. ■

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Table 2. Common Triggers of Rosacea

A National Rosacea Society survey of 1066 persons with rosacea found that the most common triggers included the following:

Factors	Percent Affected
Sun exposure	81%
Emotional stress	79%
Hot weather	75%
Wind	57%
Heavy exercise	56%
Alcohol consumption	52%
Hot baths	51%
Cold weather	46%
Spicy foods	45%
Humidity	44%
Indoor heat	41%
Certain skin-care products	41%
Heated beverages	36%
Certain cosmetics	27%
Medications	15%
Medical conditions	15%
Certain fruits	13%
Marinated meats	10%
Certain vegetables	9%
Dairy products	8%
Other factors	24%

Adapted from: Rosacea triggers survey. National Rosacea Society website. http://www.rosacea.org/patients/materials/triggersgraph.php. Accessed September 9, 2016.

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